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COMPLETE SPECIFICATION.

Improvements in and relating to Means for Protecting the Human Ear against Objectionable Noises and the like.

I, Dr. HERMANN NIERIKER, of No. 74, Bahnhofstrasse, Zürich, Switzerland, Dentist, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

- 5 This invention relates to means for protecting the human ear against objectionable noises and the like, of the kind in which a body or plug-like device is adapted to be inserted into, and withdrawn from, the ear cavity.

An ear protector is known, which comprises an elongated body and having an expansion chamber formed either by a flexible hollow-walled drum disposed on the body or by diaphragms having circular rims and also disposed on the body and acting in conjunction with the walls of the ear and passages in the elongated body communicating with the expansion chamber.

- This kind of ear protector has various disadvantages: The diaphragms or the drum is not adapted to fit throughout uniformly to the wall of the meatus of the ear, as the cross section of the meatus is not that of a cylinder. Whilst one part of the diaphragms or the drum perhaps does not touch, or does not sufficiently touch, the wall of the meatus, another part causes a detrimental friction on the meatus, so that the ear protector cannot be worn a long time. Furthermore, the width and form of the meatus differ very much in different individuals, so that it is impossible, that the said ear protector will fit all persons. The danger of transferring disease by the said ear protector is not obviated as one and the same damper can be worn by different persons. The form of this ear protector is not so as to permit an easy cleansing of the same and the rubber diaphragms are liable to be withdrawn from the body and become damaged.

All these disadvantages are avoided in the sound-damper forming the object of the present invention.

- According to this invention, the sound-damper consists of a plug adapted to the anatomical structure of the external ear and of the auditory canal, flat on the outer surface and having a passage of small diameter or a groove, or a passage and groove combined, leading from the outer side of the plug to its innermost part.

- The sound-damper is quite inconspicuous and scarcely noticeable when worn. The danger of transferring disease by the sound-damper is obviated as one and the same danger, in consequence of it fitting only one particular person can always be worn by the same person and no other.

Two forms of carrying the invention into effect is shown by way of example in the accompanying drawings, in which:

- Figure 1 is a view of one form of the improved sound-damper as seen from the outside.

Figure 2 is a view from the inside, and

Figure 3 is a front view.

[Price 8d.]



Means for Protecting the Human Ear against Objectionable Noises and the like.

Figure 4 is a view of another form of the improved sound-damper as seen from the outside,

Figures 5 and 6 are a side view and a plan thereof.

1 (see Figs. 1, 2 and 3) is the body forming the sound-damper consisting preferably of light material which does not conduct the sound or only very slightly, e.g. vulcanised rubber, celluloid or the like. The outer side 2 (Fig. 1) of the damper is smooth and skin-coloured in order to be as inconspicuous as possible. The edge 3 of the sound damper is accurately fitted to the shape of the opening of the ear. The inner side 4 (Fig. 2), of the damper is accurately fitted in every particular to the anatomical structure of the outer ear and the outer auditory canal 5 (Fig. 3), so that it fits exactly to the auditory canal. Consequently no part of the ear suffers any pressure from the sound-damper, and its wear does not cause any inconvenience. The sound-damper is also provided with a passage 6 of small diameter extending from its outer side 2 as far as its innermost end (as drawn) through which passage there is a connection between the auditory canal and the outer air, so that there is no compression or stagnation of the air, and the free perspiration of the auditory canal is not interfered with. The sound waves entering through this canal 6 cannot hinder the damping of the sound.

In the modification shown by Figs. 4, 5 and 6 the sound-damper is provided partly with a passage 6 and partly with a groove 7 connected thereto, for the purpose of providing a connection of the isolated portion of the auditory canal with the outer air.

In some cases the groove could lead from the inner end of the plug to the outer end.

In preparing the sound-damper, a cast or mould is taken of the auditory canal and of the outer ear of the person for whom the sound damper is to be made. Hereafter the sound-damper is prepared by means of this cast or mould. The passages will be bored and the grooves may be engraved into the plug.

The sound-damper can be easily inserted into the ear by slightly rotating and then sits securely in the same. The extraction is effected with equal ease by turning it forwards and downwards, and if necessary by pressing with the finger on the rear, lower side of the outer ear.

Before the damper is inserted into the ear it is advisable to smear same with vaseline or olive oil so that it easily slips into the ear. In the absence of such a lubricating medium, saliva can also be used.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

A sound-damper, consisting of a plug adapted to the anatomical structure of the external ear and of the auditory canal, flat on the outer surface and having a passage of small diameter or a groove, or a passage and groove combined, leading from the outer side of the plug to its innermost part substantially as described and shown on the drawing.

Dated this 16th day of April, 1913.

MARKS & CLERK.

Fig. 4



Fig. 5

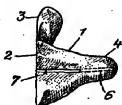


Fig. 6

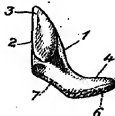


Fig. 1

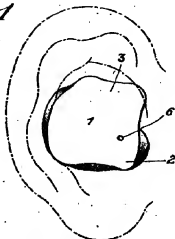


Fig. 2

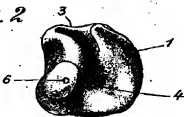


Fig. 3

